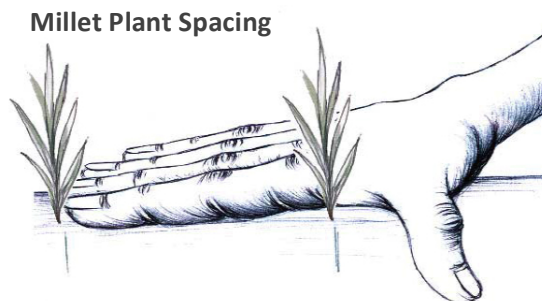


Farmers First

PHASE:	Research Station	50 – 500 farmers	1,000 – 20,000 farmers	Full Scale
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Introduction

Finger Millet has been grown in East Africa for thousands of years. However, with the arrival of robust maize breeding programs during the twentieth century, Finger Millet slowly declined in prevalence on smallholder farms. Then, in 2013, there was surprising resurgence of what has been termed by some to be an “orphan crop.” With the spread of a devastating maize disease known as Maize Lethal Necrosis (MLN) in the region, One Acre Fund has worked to reintroduce finger millet as an alternative cereal to disease-susceptible maize varieties commonly grown in Kenya.



Source: One Acre Fund

\$70	Average profit impact per acre	80%	Farmer participation in the program
24%	Average yield improvement per acre	88-96%	Planting method compliance

Context and Trial Rationale

- Finger Millet is an attractive cereal diversification option. This is particularly important in light of the threat of Maize Lethal Necrosis Disease (MLND), which has the potential to cause crop failures in maize in East Africa.
- Finger Millet has high potential for cultural adoption, as it is familiar to many people in East Africa.
- The professionalization of planting methods and the initial adoption of finger millet by One Acre Fund farmers could help contribute to broader commercial adoption in East Africa.

Major Intervention Configurations

One Acre Fund consulted experts to come up with a smallholder-appropriate millet planting technique. Chrispinus O.A. Oduori, head of Finger Millet Research at the Kenya Agriculture Research Institute (KARI) in Kakamega, helped to advise these trials and provided valuable research.

- **Planting Method:** One Acre Fund conducted “customer-centered design iterations” on various planting methods, with farmers in Western Kenya. Our easiest-to-adopt technique involved using a planting string to mark off 5-meter sections, and then matching an amount of fertilizer (2 “red bottle caps” or 16.4 grams) and an amount of seed (1 “clear OAF Scoop” or 0.93 grams) to that section. 5 meters was long enough not to impede the speed of

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planting, but short enough to be precise. This fit existing cultural practice, while improving consistency. Inter-row spacing was 30 centimeters.

- *Input and plant population:* Trials were conducted with P224 seed, DAP at 50 kilograms per acre, CAN at 50 kilograms per acre, and target plant population of 135,000 per acre.
- *Test Configurations:*
 - 1) Baseline small trial: 50 kilograms DAP, 50 kilograms CAN, 135,000 plants per acre.
 - 2) Agronomic small trial: 75 kilograms DAP, 75 kilograms CAN, 135,000 plants per acre.
 - 3) Farmer adoption large trial: 45,000 farmers using the baseline configuration.

A. Yield and Profit: Agronomic Results Summary

	N/ Config	Location/ Date	Yield	Change in Profit*/ Acre v. Trial Control
1. Baseline: P224, 50kg DAP, 135,000 plants per acre	86 Farmers, ¼ acre side-by-side	Western Kenya, LR 2013	1107 kg/ acre @ \$0.79 per kg	+\$0
2. Agronomic test: P224, 75kg DAP, 135,000 plants per acre	86 Farmers, ¼ acre side-by-side	Western Kenya, LR 2013	1220 kg/ acre @ \$0.79 per kg	+\$45
3. Scale up test: baseline agronomic configuration	45,000 Farmers (sample = 278)	Western Kenya, LR 2013	821 kg/ acre @ \$0.79 per kg	+\$70

*Profit per acre includes expense of \$40 for land opportunity cost, \$50 for labor opportunity cost, and inputs cost.

B. Farmer Adoption: Pretty Good, but not Great

- Planting Method: One Acre Fund tried several planting methods, choosing one that was suitably simple to adopt.
 - Using a planting string with 5 meter markings enabled farmers to plant quickly, while also ensuring sufficient planting precision. The use of specific scoops and bottle tops made seed and fertilizer rates precise. Importantly, this method fit farmers' local preference to "trickle" seed through their fingers.
- Purchase Behavior:
 - In the 2013 season, One Acre Fund offered either a half-acre of millet or sorghum for adoption to 60,000 Kenyan farmers in our program. Maize was not offered in our package, due to the presence of MLND. 75% of our farmers, or 45,000, opted for finger millet over sorghum.
 - Overall however, millet had less popularity than maize, the benchmark crop of Kenya, evidenced by customer sign-up rates that were approximately 40% lower than normal.

C. Operability at Scale: Strong overall

One Acre Fund did not encounter any major operational challenges to scale up the product in an initial test of 45,000 farmers at an average of 0.5 acres per farmer. In particular, suitable seed stock was readily available through Kenya Seed Company, and is simple and straightforward to store and deliver.

Next Steps

In the future, One Acre Fund will continue to:

- 1) Make refinements to the planting method
- 2) Scale-up tests will continue at a scale of roughly 50,000 farmers (the rough number that will sign up in 2014).